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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ALI, SHUMAYA B	
ART UNIT	**PAPER NUMBER**
3771	

MAIL DATE	DELIVERY MODE
10/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/782,216	PIERRY, ANTHONY T.	
	Examiner	Art Unit	
	Shumaya B. Ali	3771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

In response to the office action mailed on 4/4/07, no amendment to the claims has been made. Currently, Claims 1-22 are pending in the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-14, and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mace et al. US 4,958,075 in view of Smith et al. US 5,245,859.

As to claim 1, Mace discloses a sidestream gas sampling system (figs. 1 and 2), comprising: a conduit (50) adapted to communicate a flow of gas to a gas measurement site; a gas measurement assembly (20) adapted to measure a constituent of the flow of gas at the gas measurement site; a capillary tube (118, col.7, lines 60-64) adapted to communicate the flow of gas from the gas measurement site. Mace however lacks a differential pressure transducer in fluid communication with a first portion, and a second portion of the capillary tube. However, Smith in a method of measuring capillary pressure teaches a differential pressure transducer (see fig.1, 20) in fluid communication with a first portion (20 communicate with a first portion of tube, which is located between 34 and 14 in fig.1 via line 22) and a second portion (20 communicate with a first portion of tube, which is located between 14 and 16 in fig.1 via line 22)

of the capillary tube. Smith teaches such arrangement of the differential transducer allows constant flow of liquid between points upstream and downstream of the capillary tube (see col.2, lines 19-23). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mace in order to provide a differential pressure transducer in fluid communication with a first portion and a second portion of the capillary tube for the purposes of obtaining a constant flow between the upstream and downstream of the capillary tube as taught by Smith. Smith teaches the first portion and the second portion are spaced sufficiently far apart from one another such that a pressure differential exists there between (see fig.1, col.2, lines 19-23). Mace further discloses flow-generating means (30) for generating the flow of gas; and a controller (36) operatively coupled to the differential pressure transducer and the fluid transferring means. Mace as modified by Smith teaches the controller measures the flow of gas based on the output of the differential pressure transducer and controls the flow of gas via the flow generating means based on the measured flow (col.8, lines 40-62).

As to claim 2, Mace discloses the flow generating means is a pump (col.5, lines 10-13).

As to claim 3, Mace discloses the first portion is an inlet portion of the capillary tube and the second portion is an outlet portion of the capillary tube (see fig.1).

As to claim 5, Mace discloses the gas measurement assembly includes an emitter adapted to emit radiant energy through the gas at the gas measurement site and a detector adapted to receive the radiant energy passing through the gas at the gas measurement site (col.2, lines 30-35, and col.5, lines 54-65).

As to claim 6, Mace discloses the controller controls the flow generating means in a feedback fashion such that the flow of gas remains constant (see col.9, lines 5-35, where the microprocessor controls the vacuum pump to allow a constant flow).

As to claim 7, Mace discloses the capillary tube communicates the flow of gas from the gas measurement site to ambient atmosphere (through aperture 80).

As to claim 8, Mace discloses the capillary tube communicates the flow of gas from the gas measurement site to the flow generating means (see fig.1).

As to claim 9, Mace discloses a sample cell (24) having an inlet operatively coupled to an end of the conduit to receive gas from the conduit and an outlet operatively coupled to the capillary tube, wherein the sample cell defines the gas measurement site (fig.1, col.5, lines 25-53).

As to claim 10, Mace discloses the sample cell is detachable from a housing containing the gas measurement assembly, the capillary tube, the flow generating means, and the controller (see col.6, lines 35-37).

As to claim 11, Mace discloses a sidestream gas sampling system in figures 1 and 2, comprising: gas communicating means (118) for communicating a flow of gas to a gas measurement site; gas measuring means (20/24) for measuring a constituent of the flow of gas at the gas measurement site. Mace however lacks a flow sensing means for measuring the flow of gas in the gas communicating means substantially independent of a density of the flow of gas. However, Smith teaches a flow sensing means (i.e., a differential pressure sensor, fig.1, 20) as applied to claim 1. Mace discloses a flow generating means (30) for generating the flow of gas; and controlling means, operatively coupled to the flow sensing means and the flow generating

means, for controlling the gas flow generating means based on an output of the flow sensing means (col.8, lines 40-62).

As to claim 12, Mace discloses the sidestream gas sampling system of claim 11, wherein the flow generating means is a pump (col.5, lines 10-13).

As to claim 13, Mace discloses the sidestream gas sampling system of claim 11, wherein the flow sensing means is a differential pressure transducer in fluid communication with a first portion and a second portion of a capillary tube (118).

As to claim 14, Mace discloses the sidestream gas sampling system of claim 13, wherein first portion is an inlet portion of the capillary tube and the second portion is an outlet portion of the capillary tube (see fig.1).

As to claim 16, Mace discloses the sidestream gas sampling system of claim 13, wherein the capillary tube communicates the flow of gas from the gas measurement site to ambient atmosphere (through aperture 80).

As to claim 17, Mace discloses the sidestream gas sampling system of claim 13, wherein the capillary tube communicates the flow of gas from the gas measurement site to the flow generating means (see fig.1).

As to claim 18, Mace discloses the sidestream gas sampling system of claim 13, wherein the controlling means is operatively coupled to the differential pressure transducer and the flow generating means to control the flow generating means based on an output of the differential pressure transducer (col.8, lines 40-62).

As to claim 19, Mace discloses the sidestream gas sampling system of claim 19, wherein the controlling means controls the flow generating means such that a rate of the flow of gas

remains constant (see col.9, lines 5-35, where the microprocessor controls the vacuum pump to allow a constant flow).

As to claim 20, Mace discloses the sidestream gas sampling system of claim 11, wherein the gas measuring means includes: radiant energy emitting means for emitting radiant energy through gas at the gas measurement site; and detecting means for receiving the radiant energy passing through the gas at the gas measurement site (col.2, lines 30-35, and col.5, lines 54-65).

As to claim 21, Mace lacks a detailed description of the claimed steps, however discloses structural limitations required to perform the method steps as cited (see also rejection cited for claims 1-3,and 5-10). Thus, the method steps as cited in claim 21 would have been obvious result of using the apparatus of Mace.

As to claim 22, Mace teaches the method of claim 21, wherein controlling the flow of gas is accomplished in a feedback fashion such that the flow of gas remains constant (see col.9, lines 5-35, where the microprocessor controls the vacuum pump to allow a constant flow).

Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mace et al. US 4,958,075 and Smith et al. US 5,245,859 and in view of Adrian US 4,228,352.

As to claims 4 and 15, Mace lacks wherein the capillary tube includes at least one bend. However, Adrian teaches an apparatus for measuring a concentration of gases using bend tube (see figs. 1-7 of Adrian). Adrian further teaches such tube configuration allows for an effective deflection of radiation along the length of the tube (see col.3, lines 1-8, and lines 15-25 of Adrian). Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to provide bend on the tube of Mace in order to effectively deflect radiation along the length of the tube as taught by Adrian.

Response to Arguments

Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shumaya B. Ali whose telephone number is 571-272-6088. The examiner can normally be reached on M-W-F 8:30am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 571-272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shumaya B. Ali 10/12/2007
Shumaya B. Ali
Examiner
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10/12/07